

*The most often heard contractor phrase:
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Exterior Electrical Enclosures – 1/4 inch airspace to wall

- Violation : Metallic exterior surface mounted electrical enclosure does not have the required 1/4 inch airspace between the back of the enclosure and the wall behind the enclosure
- Code Section(s) : 5th Edition (2014) FBC-Residential E3401.1, references the NEC; Chapter 46 specifies 2011 edition 5th Edition (2014) FBC-Building 2701.1, references the NEC; Chapter 35 specifies 2011 edition 2011 National Electrical Code, as referenced and specified above
- Comments : Contractor shall make corrections necessary to provide the required 1/4 inch air space between the metallic surface mounted electrical enclosure and the wall behind the enclosure

A. Violation : Metallic exterior surface mounted electrical enclosure does not have the required 1/4 inch airspace between the back of the enclosure and the wall behind the enclosure

The following applies to metallic surface mounted enclosures installed in damp locations and wet locations – exterior locations are wet locations (the very few exterior locations which might be sufficiently protected from weather to not be a “wet location” would still be “damp location” and damp locations are required to meet the same requirements as wet locations with regard to this requirement).

Metallic exterior surface mounted electrical enclosures are required to have a minimum 1/4 inch airspace between the back of the enclosure and the wall they are mounted to so as to prevent moisture or water from entering and accumulating within the cabinet or cutout box (condensation is one source of this water or moisture, thus the space needs to be ventilated with open sides, top, and bottom).

Manufacturers of metallic electrical enclosures provide made in stand-off mounts which provide that required 1/4 inch airspace.

When metallic electrical enclosures are installed on a finished wall surface, those manufactured-in stand-off mounts provide the required 1/4 inch airspace which allows ventilation of the space between the back of the enclosure and the wall, this help keep the enclosures dry as designed.

When metallic electrical enclosures are installed on an unfinished wall surface, the finish which is to be applied to the wall needs to be taken into consideration before installing the metallic electrical enclosure. One very common example of this is when installing electrical service equipment on concrete/masonry block walls which are to have stucco applied over the concrete/masonry block walls.

When the electrical service equipment is installed and mounted directly to the unfinished concrete/masonry block walls, the manufactured-in stand-off mounts provide the required 1/4 inch airspace – however, when the wall is finished and has stucco applied to the wall, the stucco is applied up against the metallic electrical equipment enclosures, sealing off the airspace behind the enclosure such that no air can circulate behind the enclosure. Additionally, the minimum thickness of the stucco applied to concrete/masonry block walls is typically 1/2 inch, which completely covers the 1/4 inch airspace. When the wall is painted and finished, whatever crack may still exist will be sealed with caulk or sealant and then painted.

The reason given by many as to why the above is not enforced ... the code is not intended to be a ‘selectively enforced’ code yet the code is ‘selectively enforced’ with regard to many requirements. This requirement is one of the frequently ‘selectively not enforced’ requirements.

The issue apparently is (as stated by those who ‘selectively do not enforce’ this section of the code) is one of timing for the contractor. I have not found the code section which addresses the code being adjusted to match the timing of the work – I thought the contractors were responsible for timing their work to meet the requirements of code.

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Nonetheless, though, the issue seems to be one of timing – the concrete/masonry block walls need to have a scratch coat and finish coat thickness of stucco applied prior to the installation of the electrical service equipment (and other surface mounted metallic enclosures). The complaint is having to get the stucco contractor out to apply scratch and finish coat stucco to the service equipment area; then having the stucco contractor come back out later to stucco the rest of the walls.

Solution 1:

Many contractors have found a very cost effective solution – they have their masons (who are already on-site ... and who already have mud mixed and at the ready) plaster the required areas to the proper thickness to match the thickness of the stucco applied later by the stucco contractor (the mason is sometimes also the stucco contractor).

Admittedly, that is certainly a novel, simple, and inexpensive, yet very effective, solution which completely offsets the issue about having the stucco contractor make a special trip to stucco that area.

The proper thickness 'finished surface' for the electrical contractor to mount the metallic surface mounted enclosures to is now there, and it provides the required 1/4 inch airspace between the back of the enclosure and the wall.

Solution 2:

Some contractors have found a different, yet still simple and cost effective, solution – install an electrical service equipment mounting panel to the block wall, such as a piece of cementitious panel siding which is as thick or thicker than the stucco will be. The stucco contractor then stuccoes to that mounting panel.

Sometimes ... the contractor will find a way to ruin a good thing:



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B. Codes : Applicable Codes

From the 5th Edition (2014) Florida Building Code, Residential: (bold and underlining in code below are mine)

○ CHAPTER 34 GENERAL REQUIREMENTS

SECTION E3401 GENERAL

E3401.1 Applicability.

The provisions of Chapters 34 through 43 shall establish the general scope of the electrical system and equipment requirements of this code. Chapters 34 through 43 cover those wiring methods and materials most commonly encountered in the construction of one- and twofamily dwellings and structures regulated by this code. Other wiring methods, materials and subject matter covered in NFPA 70 are also allowed by this code.

From the 5th Edition (2014) Florida Building Code, Building: (bold and underlining in code below are mine)

○ CHAPTER 27 ELECTRICAL

SECTION 2701 GENERAL

2701.1 Scope.

This chapter governs the electrical components, equipment and systems used in buildings and structures covered by this code. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of NFPA 70.

From 2011 NFPA 70 – 11, National Electrical Code: (bold and underlining in code below are mine)

○ ARTICLE 312 Cabinets, Cutout Boxes, and Meter Socket Enclosures

312.2 Damp and Wet Locations. In damp or wet locations, surface-type enclosures within the scope of this article shall be placed or equipped so as to prevent moisture or water from entering and accumulating within the cabinet or cutout box, and shall be mounted so there is at least 6-mm (1/4 in.) airspace between the enclosure and the wall or other supporting surface. Enclosures installed in wet locations shall be weatherproof. For enclosures in wet locations, raceways or cables entering above the level of uninsulated live parts shall use fittings listed for wet locations.

Exception: Nonmetallic enclosures shall be permitted to be installed without the airspace on a concrete, masonry, tile, or similar surface.

○ ARTICLE 100 Definitions

Location, Damp. Locations protected from weather and not subject to saturation with water or other liquids but subject to moderate degrees of moisture. Examples of such locations include partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture, such as some basements, some barns, and some cold-storage warehouses.

Location, Dry. A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.

Location, Wet. Installations underground or in concrete slabs or masonry in direct contact with the earth: in locations subject to saturation with water or other liquids, such as vehicle washing areas; and in unprotected locations exposed to weather.

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I look forward to all contributions, and suggestions for future topics.

Respectfully submitted,



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